

Hello all,

Welcome to the November-2007 COHERENCE Newsletter. (If you are wondering about the October letter, there wasn't one.☺ I apologize for that, but realistically, it will happen from time to time.) In this newsletter, we will continue our discussion of the 2nd most important principle of Coherent Breathing – *relaxation*. Relaxation is critical because in the presence of *internal* tension, even if we breathe slowly and deeply, we don't see big gains in blood flow or its result, heart rate variability amplitude. Again, I theorize that this is because tension reduces vascular capacity and prevents the propagation of the respiratory arterial pressure wave.

We introduced the topic of relaxation in the September letter but stopped short of discussing “how” to achieve and maintain it. Hence, this is the focus of this month's newsletter.

At the end, I offer a simplified version of “The Six Bridges” exercise. To learn more about the comprehensive exercise click here:

http://www.coherence.com/explanation_of_6_bridges_html.htm

Previous newsletters are available here:

http://www.coherence.com/coherence_newsletters_production.htm

As always, your interest and support is most appreciated.

Regards,

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The Art of Coherent Breathing – Principle #2: Relaxation (continued)

To pick up where we left off last month, relaxation is critical to blood flow and HRV amplitude. However, slower deeper breathing is a prerequisite for relaxation. Why? Because relatively rapid shallow breathing negates respiratory arterial pressure wave (RAPWave) magnitude – the autonomic nervous system responds by asserting sympathetic bias, and with it, activation of low threshold muscle motor units throughout the body. As blood vessels are composed of low threshold muscle motor units, the result is reduced vascular capacity and its result, reduced blood flow.

Conversely, when we breathe slowly and deeply, autonomic action tends toward balance, swinging from sympathetic emphasis during inhalation to parasympathetic emphasis during exhalation, resembling the action of a pendulum. Even so, without conscious relaxation, micro-tension, contraction of low-threshold muscle motor units persists. This tends to be the behavior of the sympathetic nervous system – fast to engage, stubborn to disengage.

Here I argue that *the autonomic nervous system alone, does not possess the ability to govern optimally without our conscious participation* (from *The New Science of Breath*). The “conscious” participation that I am referring to is: a) conscious moderation of breathing frequency and depth, and b) conscious relaxation.

When we hear the term relaxation, most of us tend to think of “skeletal muscles”, the relatively large muscles involved in gross body movement. However, the relaxation we are discussing goes deeper than that. In Taoist parlance, it is referred to as “internal” relaxation – which is very appropriate given that our interest is in relaxing the vascular system itself! Specifically, we are trying to gain some degree of conscious control over “low threshold muscle motor units”, the very short fine muscle fibers (of which the vascular system is made) that are activated by very low level nervous impulses.

Generally, muscles throughout the body are organized into motor units of varying electrical sensitivity. During movement, motor units are “recruited” accordingly, i.e. in order of sensitivity, lowest to highest. During relaxation, they are freed in reverse order, from highest to lowest. But, once flexed, without conscious relaxation, low threshold motor units throughout the body tend to remain flexed. Why? I believe the answer is that unless consciously “quieted”, the nervous system itself produces the electrical potential to keep

them flexed. If so, then it is our goal to reduce this nervous system potential – but how?

This is where “bridges” come in handy. A bridge is one of 9 specific anatomical zones over which we have explicit *dual control*. The dual control I am referring to is that of somatic or “conscious” nervous function, and that of autonomic (automatic) or “subconscious” nervous function. The examples we use in *The New Science of Breath* are the eyes and the jaw. If we consider the act of blinking or chewing, we see that we can do either very consciously, opening and closing the eyes or mouth with a very fine degree of control. However, when we are not consciously controlling them, autonomic nervous function looks after things, blinking and chewing as need be. This is not particularly surprising.....

However, what is surprising is that each of these “bridges” provides a gateway via which we can consciously influence the state of the autonomic (subconscious) nervous system. One reason for this is that we have a very high degree of feeling or sensation of these points. We can use this fine sense to determine the degree to which each is either relaxed or tense. Along with this fine sense, we also have a high degree of conscious control, including the ability to control associated low threshold muscle motor units. It is this very control over low threshold muscle motor units that allows us the fine degree of movement that we have over “bridges”.

Now, the really important thing is that if we consciously relax the low threshold motor units, for example those associated with the jaw, other low threshold muscle motor units throughout the body will follow! I am confident that this includes those of the vascular system. For this reason, if we observe the RAPWave, as depicted in Figure 2 of the September newsletter,

http://www.coherence.com/coherence_newsletter_september_2007_production.pdf), we see that the peak increases substantially during deep relaxation. (And, if monitored, there is a corresponding drop in the HRV valley (HRV_{MIN}), serving to increase overall HRV amplitude.)

This effect is true of all bridges, some being easier to employ than others. (For a complete list of bridges, see page 3 of *The New Science of Breath*.) Generally, we tend to have more awareness of the upper bridges than the lower ones, and for this reason we will choose one of the upper bridges for the following (abbreviated) practice of – *The Six Bridges*.

The Six Bridges (Abbreviated Form):

The Six Bridges is an exercise of my invention that helps cultivate and maintain relaxation of low threshold muscle motor units, the outcome being increased RAPWave magnitude and corresponding HRV amplitude.

For this exercise, choose the eyes, the jaw, or the tongue. We're talking about the general anatomical region of each, the complex of muscles. How do you choose? Close your eyes gently and place your mind on each. Choose the one can you "feel" the most.

Now, begin Coherent Breathing, inhaling and exhaling for a few minutes. Once you've settled into the pace, close your eyes gently and place your mind on the "bridge" of interest. Each time you exhale, consciously relax it, letting go more and more deeply with each exhalation. Adding the syllable SAH, SSSSAAAAAAHHHHH, inaudibly is helpful. With a little work you can feel the syllable vibrating in and around the bridge of concern; it is very subtle. Concentrate specifically on exhalation, the inhalation phase of breathing should be "neutral", i.e. no particular intent.

With continued practice, you will feel the area begin to melt under your gentle concentration. As it does so, you will feel your hands grow warmer. This is a primary sign of success and is indicative of changes in autonomic regulation of blood flow throughout the body. In fact, you can use your own hand temperature as your primary "biofeedback" indication that you are achieving the desired level of relaxation throughout the day.

Try other bridges as well. The goal is to become familiar with them all, learning to keep them all in a relaxed state throughout the day, circumstances permitting – this is not easy to do. ☺

The Breathing Pacemaker recording "The Six Bridges", available on the COHERENCE products page, is designed expressly for use with The Six Bridges exercise. You may wish to try it. It incorporates a slightly dissonant melodic sequence with a descending scale, and a fade-away, a particularly effective combination for eliciting nervous system relaxation (and reducing pain). When listening, relax more deeply with each descending note.

Thank you for your interest. The End.